



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/506,387

01/25/2005

Joachim Kiefer

3799.1002.000

1646

21005

7590

05/05/2008

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

530 VIRGINIA ROAD

P.O. BOX 9133

CONCORD, MA 01742-9133

EXAMINER

PEZZUTO, HELEN LEE

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

05/05/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/506,387 | <b>Applicant(s)</b><br>KIEFER ET AL. |  |
|                              | <b>Examiner</b><br>Helen L. Pezzuto  | <b>Art Unit</b><br>1796              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16, 18-21, 24-26 and 28-39 is/are pending in the application.
- 4a) Of the above claim(s) 30-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16, 18-21, 24-26 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 16, 18-21, 24-26 and 28-39 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/2/04</u> .  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Amendment***

Applicant's amendment to claims 16, 30, 34, the addition of claims 36-39, and the cancellation of claims 17, 22, and 27 filed in the response on 1/4/08 is acknowledged. Currently, claims 16, 18-21, 24-26, and 29 are under consideration in this application.

***Election/Restrictions***

1. Claims 30-35, and newly submitted claims 36-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 5/21/07.

2. This application contains claims 30-3-39 drawn to an invention nonelected with traverse in the reply filed on 5/21/07. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Claim Rejections - 35 USC § 102/103***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the

Art Unit: 1796

art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 16-22, and 24-29 are rejected under 35

U.S.C. 102(b), 102(e), as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Andreola et al. (US-968) or Suzuki et al. (US-856) or Formato et al. (US-469) for the reasons of record.

US 5,643,968 disclose ion exchange membranes comprising graft copolymer having a backbone of a first polymer and a polymerizable vinyl monomer containing ion exchange functional groups. Suitable backbone polymer polymers include any polymer containing aromatic rings, inclusive of those containing nitrogen, oxygen or sulfur atoms in the recurring units as expressed in the present claims (col. 3, lines 24-35), and suitable functional vinyl monomer include amides and esters of vinylsulfonic acid and vinyl phosphonic acids, which may be subsequently hydrolyzed by either acid or base if desired (col. 3, lines 58-65; col. 6, lines 25-65; col. 13, Example 10; col. 16, claim 3). Thus, forming the instant membrane product.

US 6,607,856 to Suzuki et al. discloses a solid polymer electrolyte membrane containing backbone polymer having functional chelate groups such as sulfonic acid and

Art Unit: 1796

phosphonic acid groups (col. 5, line 11 to col. 6, line 23; col. 8, Example 1; col. 19, Example 13). The resultant membrane has a proton-conductivity of greater than or equal to  $1 \times 10^{-2}$  S/cm (col. 5, lines 6-10). Thus, yielding the instant membrane product.

US 6,248,469 to Formato et al. discloses a solid polymer electrolyte membrane having a porous polymer substrate interpenetrated with an ion-conducting material. Suitable polymer substrates include those containing at least one nitrogen, oxygen or sulfur atom in the recurring units as expressed in the present claims (col. 6, lines 22-50; col. 7, lines 1-29; col. 10, lines 9-18). The preferred ion-conducting material includes the instant polyvinyl sulfonic acid and polyvinylphosphonic acid (col. 7, lines 10-28; col. 14, lines 31-41). The resultant membrane has ion-conductivity of greater than 0.1 S/cm (col. 12, lines 58-64). One of the method embodiments in producing the membrane comprises the step of preparing the substrate polymer and subsequently impregnating the substrate with the chosen monomers, which are then polymerized in situ to form the composite membrane (col. 8, lines 30-34; col. 17, lines 22-27). Thus, producing the instant membrane product.

The examiner takes notice that the present claims are presented in a product-by-process format. Thus, the patentability of the claimed invention is determined based on the product itself, not the method of making it. It is well settled that if the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. Accordingly, when applicant's product and that of the prior art appear to be identical or substantially identical, the burden shifts to applicant to provide evidence that the respective products do in fact differ, and that prior art product does not necessarily or inherently possess the relied upon characteristics of applicant's claimed product.

### ***Double Patenting***

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re*

Art Unit: 1796

*Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 16, 18-21, and 24-26, and 29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 20-26, and 28-31 of copending Application No. 10/506,622. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant membrane product encompasses the membrane product recited in the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Response to Arguments***

Applicant's amendment and remarks filed on 1/4/08 have been fully considered but are not found to be persuasive. Firstly, applicant urges that Andreola et al. (US-968) describes a graft copolymer which differs from applicant's mixture or blend of



Art Unit: 1796

inter-penetrating network of two independent polymers. This is not compelling as the alleged feature of interpenetrating network of two independent polymers, upon which applicant relies is not recited in the rejected claims. Secondly, applicant urges that the product resultant from the process of Suzuki's Example 1 would not produce the claimed product derived from in situ polymerization, namely a material having a much higher degree of interpenetration of two types of polymer chains as compared to that in Suzuki's process. The is similarly not found to be compelling as the recited claims are not directed to a material having any degree of interpenetration of two polymer chains. Furthermore, the alleged unexpected membrane properties of low permeability, high mechanical stability, and its suitability for use with pure hydrogen or methanol are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. Finally, with respect to the Formato reference (US-469), applicant urges that the substrate polymer of prior art is different from the polymer of step (a) of applicant's, and hence the composite membranes of Formato is different as well. Applicant further argues that the claimed membrane is not taught to contain voids or microspores as compared to prior art membrane. The examiner respectfully

Art Unit: 1796

disagrees. The recited polymer in step (a) and the membrane as claimed do not distinguish over prior art's because the present claims do not specifically preclude the presence of voids or micropores. Furthermore, prior art specifically teaches the formation of interpenetrating network membrane via in-situ polymerization of monomers in the presence of substrate polymers (col. 17, lines 22-44). Accordingly, the examiner's position is maintained.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L.

Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Helen L. Pezzuto/  
Primary Examiner  
Art Unit 1796

hlp

Application/Control Number: 10/506,387  
Art Unit: 1796

Page 11